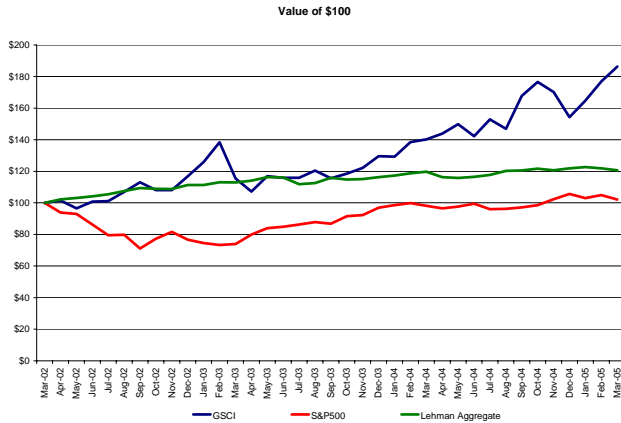




Why Invest in Commodities?

March 14, 2005

There has been a recent up-tick in demand for commodities as an investment asset class. The mutual fund inflows into the sector have been large, and the institutional direct allocations have been growing at a quick pace as well. The reason for the sudden interest is not hard to understand; commodity indices are up dramatically over the past few years.

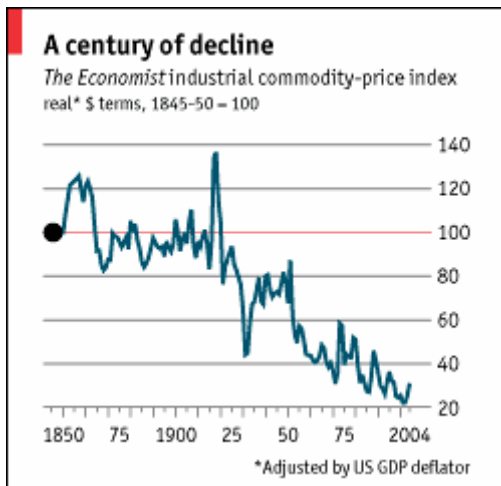


Over the past three years, the total return of commodity indices has been superior to bonds and equities by a substantial margin. If the recent past has shown us anything it is that money follows the “hot” asset classes, and it should not be any surprise that money is now chasing the returns of commodities.

Unlike the tech bubble of the late 1990s, there seems to be a rational

reason for the increase in commodity prices. For starters, the U.S. economy is out of recession and growing strongly. Further, and more importantly, China and India are growing at amazingly fast rates (China’s annual growth pace of real GDP averaged ~9.7% between 1990 and 2003). These two countries are home to over two billion people or about 1/3 of the world’s population, and have a tremendous appetite for raw commodities¹.

Given this backdrop, is it any surprise that oil is reaching multi-year highs, gold is back above \$400 per ounce and the commodity indices are all at high levels? The story seems to make sense, and since the development of China and India will continue (undoubtedly with ups and downs), the price of these raw goods should keep going up.



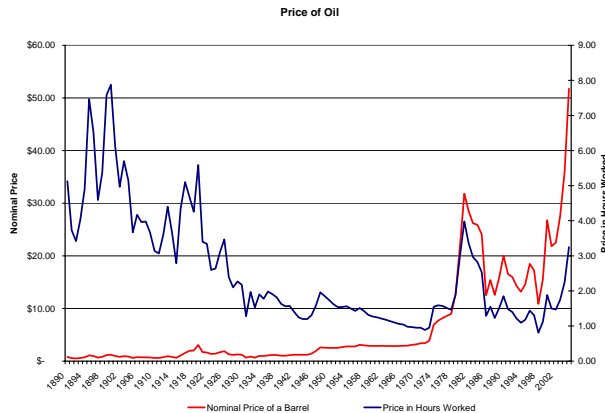
The problem with this view is that it flies in the face of history. In real terms, commodities are 30% of what they were 150 years ago, and this is after the recent run up. An investor who owned a basket of commodities has lost an amazing 70% of his wealth since the world started to industrialize.

At first glance, this would appear inexplicable. Certainly the world demands more steel, oil, wheat, rubber, etc than it did in 1850. How can the prices be 70% of what they were 150 years ago? The answer is simple, people solve problems. When there are sufficient economic

¹ For the purposes of this piece, we ignore other possible factors, such as a falling USD, which have contributed to the rise in commodity prices in dollars. Further, we avoid the debate of whether the growth rates in China and India are sustainable

incentives, people learn how to mine, grow and refine more efficiently every year. People discover low cost substitutes, and people shift their input demands to capture relative price differentials.

Let's look at the commodity with the greatest daily price discovery, oil, as an example. Using data from the Federal Reserve Bank of Dallas we can get the price of a barrel of oil back to 1850. The time series looks like this.



The red line shows the nominal price of a barrel of oil, and it certainly looks like an asset that would be attractive to own. However the blue line is the relevant one; it shows the number of hours an average worker would have to work to buy the barrel of oil². While the recent spike in oil has certainly made it more expensive, it is still below the 1981 peak, to say nothing about the levels of 1900.

Consider that from 1900³ to 1970 the real cost of a barrel of oil dropped 88%. Other things occurred during that time period:

- U.S. Population grew from 76 million to 205 million⁴
- Global car production grew from 10,000⁵ to 29.7 million⁶
- Real GDP grew from \$327 billion to \$3,771 billion⁷
- Real GDP per capita grew from \$4,310 to \$18,394⁸

In other words, the use of petroleum grew enormously. Besides the obvious increase in automobile production, the use of the automobile became widespread. Yet despite all these developments, real oil prices dropped 88%. Incidentally, we chose 1970 to eliminate the OPEC distortion, and because prior to 1970 the developing world's (China and India especially) oil use could be ignored.

How can a seemingly logarithmic increase in demand for oil correspond to a colossal fall in the price of oil? The answer is simple; at every step people innovated and created new, cheaper ways to extract oil. This same pattern can be extracted to every other

² Note this is deflating the price using wage inflation as opposed to the more frequently used price inflation. Wage data series go back further than consumer price series which is why this is used. Wage inflation has been higher than consumer inflation (on average) but the basic point would be the same in either case.

³ Standard Oil was founded in 1868 so by 1900 oil was definitely a known product. Standard Oil was broken up in 1911 so by that time oil was clearly a huge business.

⁴ <http://www.census.gov/popest/archives/1990s/popclockest.txt>

⁵ http://www.aaca.org/history/cars_10.htm

⁶ http://www.aaca.org/history/cars_90.htm

⁷ In 2000 Dollars, http://www.eh.net/hmit/gdp/gdp_answer.php

⁸ Ibid

commodity. The fact is that increased population and production yields cheaper commodities, not more expensive ones⁹.

Skeptics might point out that while all this was true (since it is indisputable) this time it is different. The emergence of the Chinese and Indian economies into the modern era is unlike anything we have seen before. Furthermore, all the gains in productivity when it comes to oil extraction or other commodity production have been reached. There is nothing else left.

Judging from the statistics listed above this is perhaps an exaggeration (it is unlikely that total auto production will go up another 290,000%), but it is clear that there is going to be a huge demand for these commodities. What is not often reported is the amount of brain power these countries are also producing. India is pumping out 260,000 engineers per year¹⁰ alone, with China producing an additional 100,000. That is 360,000 new brains every year to figure out new ways to produce commodities efficiently¹¹.

I hazard no guess as to what forms the improvements may take, but it is with great certainty that they will occur. The great historical trend of falling commodity prices will only be helped, not hurt, by the addition of so many minds to the pool of global human capital.

Commodity Investing

Where does this lead the commodity investor¹²? In the short run it is clear there are going to be strains on global commodity supplies. Oil production seems to be at near term capacity and there is just no more left to pump. The same is true for natural gas, cement, steel and many agricultural commodities. This will undoubtedly bring gains to commodity investors in the near term.

The long term outlook, however, seems poor. The continuation of the historic, multi-decade (probably multi-century) trend of falling commodity prices is not about to come to an end. Investors making “strategic” as opposed to “tactical” allocations¹³ to raw commodities are likely to be disappointed. While it is true the sheer number of people demanding these commodities is growing quickly, history tells us that demand will be met in stride by the creativity of the human mind. To believe anything different is a bet against the multi-century (at least since the Middle Ages) path of progress: a long term bet we are not making for our clients.

⁹ Julian Simon’s work should be read by everyone interested in this idea. A good introduction to him is at http://www.cato.org/pubs/policy_report/cpr-20n2-1.html

¹⁰ “The Rise of India” *Business Week* 12/8/2003
http://www.businessweek.com/magazine/content/03_49/b3861001_mz001.htm

¹¹ This is not an anti-globalization screed. We welcome the additional minds coming online to help solve the world’s problems. If it is any comfort to US citizens scared of the future, we still produce the most patents by far.

¹² Full disclosure, the author holds the Pimco Commodity Real Return fund.

¹³ Two words with unclear meanings, but we suppose they are used to differentiate time horizons.

Owning commodities directly is the trendiest way to play the commodity boom. One of the more interesting funds out there that caters to investors desiring to make this bet on commodities is the Pimco Real Return Commodity fund¹⁴. While the managers are as smart as they come and will likely outperform their commodity benchmark, we are not convinced exposure to the benchmark itself is attractive. This fund buys commodity futures and invests the cash in TIPS. The strategy is to hedge some of the price risk of commodities with TIPS, which have long durations with respect to real interest rates,¹⁵ as well as gain exposure to commodities in an indexed manner. The problem is the long term trend of falling commodity prices is likely to be a drag on total returns. While the fund has had excellent returns in the recent past, the monthly returns indicate that the strategy does not seem to have noticeably reduced risk¹⁶.

Owning shares in commodity producing stocks is probably a better way to play the commodity trend. The increased global participations will increase their sales. They also are able to leverage the difference between production costs and sales proceeds. In other words, a new invention that lowers the price of oil by \$20 a barrel will reduce the costs of an oil company as well as the final sales price. As long as there is a spread (and Capitalism tells us there will be), then the appropriate return will be earned by shareholders. This seems to us the best way to play the entrance of the emerging markets in India and China onto the world commodity scene.

¹⁴ There are others like this, but Pimco is the best known.

¹⁵ The theory is based on the concept of the business cycle; as the economy heats up, the prices of commodities can rise, while if the economy cools, real interest rates are likely to decline.

¹⁶ One thing about this fund has always troubled us. TIPS, which we believe are a great investment, are likely to do much of the heavy lifting when it comes to the returns. The addition of commodities seems like the scene in the Matrix where Morpheus describes the machines energy (to prevent charges of perpetual motion) as human power combined with a type of fusion. Or as intuitor.com puts it, "This is like getting on a 747 and having the captain explain in great detail that the plane is rubber band powered, then add that it also has four jet engines. Guess which power source gets it off the ground, duh."